

A Cross Sectional Study to Assess Knowledge and Practices of Hand Washing among Primary School Children in the Kapurthala District, India

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Abstract

Background: Hand washing is a believed to be a simple and effective practice to prevent communicable diseases. The infectious transmission of agents is rapid among school children due to their close relation with each other. To curtail the transmission, proper hand washing with soap is of great importance. However, in spite of its effectiveness, most of developing nations do not adhere to practices of hand washing. Since children are known as the vulnerable group who are at increased risk of communicable diseases, this study was performed to assess hand washing knowledge and practices among primary school children. The present study aims to assess the knowledge of hand-washing and its practices among primary school children and to discover the associated socio-demographic factors regarding the same issue.

Methods: A community based cross-sectional study was conducted in the primary schools of Kapurthala District from October 2019 to November 2019 in order to assess the hand washing practices among the children. A total of 200 primary school children were evaluated using a self designed, self-reported and pre-tested questionnaire.

Results: Statistically significant results were found in urban population regarding hand washing before eating ($P=0.006$), after handling dirty things ($P=0.042$) and after blowing nose/coughing ($P=0.024$). The rural participants showed correct handwashing techniques with statistically significant P value of 0.015. Correct handwashing techniques were statistically associated with education of the children's mothers with P value of 0.001.

Conclusion: Regular hand washing awareness sessions in the schools should be organized in order to keep our society safe and healthy.

Keywords: Handwashing, Primary school, Children

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1. Introduction

Keeping hands clean is one of the simplest and at the same time, the most effective methods to prevent the transmission of infectious agents that cause common colds, diarrhea, influenza and food-borne illnesses. (1) According to United Nations International Children's Emergency Fund (UNICEF), scientifically, as compared to any vaccine, hand-washing with soap prevents diseases in a cost effective manner and cuts the risk of diarrhea by 30-50%. (2, 3) This accounts for a strong emphasis on significance of hand washing in a developing country such as India. UNICEF has worked very efficiently in order to expand its support to Water, Sanitation and Hygiene (WASH) in schools, promoted hand washing with soap and celebration of the handwashing days in the schools – to have safe community and for prevention of diseases, particularly

in developing countries. (2) World health organization reports that 1.7 million deaths occur every year around the world due to the lack of personal hygiene. (4) Hand washing in a proper way can reduce diarrhea rates by 40%, respiratory infection by 23% and also prevent the occurrence of various outbreaks of communicable diseases spreading by contaminated hands. (5)

The importance of hand washing in children cannot be overlooked since they are susceptible to infections caused by unclean hands. School children are in close contact with each other in classrooms, as well as playgrounds, which makes the spread of infectious agents quite rapid. In order to curtail the transmission of such infections, proper hand washing with soap is very important for school children as it helps in checking the school absenteeism due to communicable diseases.

However, in spite of its effectiveness, most of developing nations do not adhere to practices of hand washing. Despite the importance of hand washing, we did not find many studies in this regard throughout our search. Since children are the vulnerable group at increased risk of communicable diseases, we undertook the present study to assess hand washing knowledge and practices among primary school children in the schools of Kapurthala district, India find out the associated socio- demographic factors.

2. Methods

This study is a community based cross-sectional study performed in the primary schools in Kapurthala district, Punjab.

2.1. Participants

The study population consisted of primary school age children enrolled in 4th and 5th grades from both genders. Also, we excluded participants who did not give consent for data filling. A self-designed, self-reported and pre-tested questionnaire was used to assess the knowledge of the participants. The students were briefed about the nature and purpose of the study and written informed consent was taken from each participant.

The study was initiated after it had been approved by the Research and Ethics Committee of the Adesh Institute of Medical Sciences and Research, Bathinda, Punjab.

The data was collected from October 2019 to November 2019 following visiting schools on working days.

Sample size was calculated by using the formula - $n = Z^2 P(1-P) / d^2$

As per the study conducted by Priyanka P Gawai (6); the prevalence of school children who did not know why it is essential to wash hands was 12.6%. Using formula $Z^2 p(1 - p) / d^2$ [$Z = \text{constant-1.96}$, $p = 12.6\%$ and $d = 0.05$], our sample size for this study came out as 162 . A value of 10% of 162 was added for incomplete pro forma and the final value was rounded off. Therefore, minimum sample size required for this study was 178.

2.2. Research Instruments

We performed the community based cross-sectional study in the primary schools of Kapurthala

district, Punjab (India). The study was initiated after obtaining the approval of school principals and Primary Education Officer Kapurthala. We chose the study subjects through Multistage Random Sampling. We collected the data through interview technique in local language by the investigator. The majority of the questions were structured with 2-4 options. Students were asked to choose only one option.

2.3. Data Analysis

After retrieving the data, education regarding hand washing and its practices was imparted to the students. The investigator handled the data and analyzed them by compiling in excel sheet and ran appropriate statistical analytical tests. Frequencies, percentages and Chi Square tests were used along with other necessary statistical tests wherever required.

3. Results

In this study, we evaluated a total of 200 participants. The mean age of participants was found to be 10.06 ± 1.675 with the range of 7-16 years. The demographic profile of the participants is presented in Table 1.

The study evaluated students in their habits of washing hands before and after undertaking various activities (Table 2). Statistically significant results were found in urban population regarding hand washing before eating ($P=0.006$), after handling dirty things ($P=0.042$), and after blowing nose/coughing ($P=0.024$). However, the results of washing hands following various activities were found statistically insignificant concerning the gender of the participants.

In the present study, we found that all schools had handwashing facilities and running water supply. However, only four participants mentioned that soap was not available for washing hands in the school. 96.5% of the students were aware of the adverse effects of not washing hands. The most common adverse effect stated was disease (47%) followed by contamination from germs (31.5%) and hampered personal hygiene (9.5%). 174 students mentioned that the infective diseases were caused due to not washing hands, whose interpretation is mentioned in Figure 1, while the remaining 26 students could not recall any of the diseases' names.

On direct observation of the hand washing technique by each individual student, we found that 49% followed the correct technique, 36.50% displayed partially correct technique while the rest of the students

Table 1: Demographic profile of participants

Category	Sub-category	Frequency (N=200)	Percentage (%)
Age categories(in years)	7-10	134	67.0
	11-13	60	30.0
	14-16	6	3.0
Area	Urban	102	51.0
	Rural	98	49.0
Class	4 th	97	48.5
	5 th	103	51.5
Gender	Male	104	52.0
	Female	96	48.0
Education of Father	Illiterate	30	15.0
	Primary	63	31.5
	Middle	38	19.0
	Secondary	42	21.0
	Senior secondary	25	12.5
	Graduate	2	1.0
Education of Mother	Illiterate	61	30.5
	Primary	62	31.0
	Middle	32	16.0
	Secondary	35	17.5
	Senior secondary	7	3.5
	Graduate	2	1.0
	Post-graduate	1	0.5
Occupation of Father	Daily wagers	122	61.0
	Self-employed	41	20.5
	Job	18	9.0
	Farmer	16	8.0
	Unemployed	1	0.5
	Deceased	2	1.0
Occupation of Mother	Housewife	122	61.0
	Working	78	39.0

Table 2: Practice of washing hands with residence area distribution of students

Washing Hands	Area	Never	Always	Some times	Occasionally	Chi-square [#] (at df=3)	P value
Before eating	Urban	3	72	16	11	12.49	0.006*
	Rural	0	84	13	1		
After eating	Urban	3	71	17	11	5.72	0.126
	Rural	6	77	11	4		
After going to toilet	Urban	0	78	19	5	5.11	0.078
	Rural	0	86	11	1		
After handling dirty things	Urban	6	73	16	7	8.22	0.042*
	Rural	0	65	22	11		
After handling pets/animals	Urban	5	61	13	23	1.84	0.607
	Rural	6	59	17	16		
After playing	Urban	7	51	31	13	5.16	0.161
	Rural	10	59	17	12		
After blowing nose/coughing	Urban	6	57	19	20	9.47	0.024*
	Rural	4	56	31	7		
After contacting sick people	Urban	4	56	24	18	4.25	0.236
	Rural	8	51	29	10		
Look visibly dirty	Urban	3	78	18	3	2.21	0.530
	Rural	1	70	24	3		

#Chi-square applied; *Statistically significant P-value less than 0.05; ** Statistically significant P-value less than 0.01

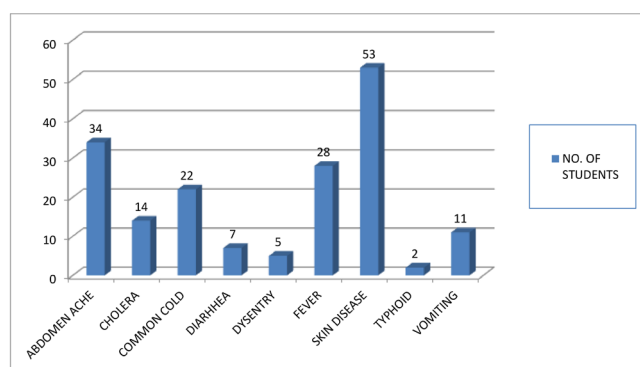


Figure 1: Showing the knowledge of students regarding diseases caused due to not washing hands

(14.50%) were incorrect in their approach.

We discovered that hand washing technique is statistically significant concerning the area of residence and education of the mother. The rural participants showed correct handwashing techniques with statistically significant P value of 0.015. Correct handwashing technique had statistically significant association with education of mother with P-value of 0.001. On the other hand, gender and age demonstrated no effects on the hand washing techniques performed by the participants (Tables 3, 4). The association of hand washing technique with the education of father and occupation of both parents was non-significant with P-value greater than 0.05.

4. Discussion

In our study, we enrolled a total of 200 participants. Males (52%) were more in number than females (48%). The mean age of participants was 10.06 ± 1.675 and majority of them had stay-at-home mothers (61%). We could see almost similar demographic findings in the study conducted by Priyanka P. Gawai in 2016 (6). This study evaluated children within age group from 6-14 years, the majority of which had fathers working as a daily wager (70%) and the mothers were housewives (59.9%).

In our study, urban population showed good practices of washing hands before eating food, after handling dirty things and after blowing nose/ coughing. In other studies, students presented the picture of washing hands before eating food, after using toilet and after playing.(6, 7) However, the tendency of students to wash hands after coughing, coming in contact with sick patients and handling pets was found to be less. The results of the present study implied that the gender of the participant had no effects on the hand washing practices of the individuals, which was similar to the findings of the study done by Harinder Sekhon in 2014 (7). On the contrary, a study conducted in Kolkata in 2010 stated that the girls had better hand washing practices than the boys before eating at home (70.4% vs. 56.3%), as well as at school (92.6% vs. 79.6%) (8). Most of the schools involved in our study as well as in other studies provided the hand

Table 3: Association of hand washing technique with the area of residence and gender of the participants

Category	Sub-category	Observation of Hand washing Technique			Chi-square# (at df=2)	P value
		Correct	Partially correct	Incorrect		
Area of residence	Urban	40	43	19	8.34	0.015*
	Rural	58	30	10		
Gender	Male	52	34	18	2.08	0.353
	Female	46	39	11		

#Chi-square applied; *Statistically significant P-value less than 0.05; ** Statistically significant P-value less than 0.01

Table 4: Association of handwashing technique with the age and the education of mother of the participants

Category	Sub-category	Observation of Hand washing Technique			F##	P value
		Correct	Partially correct	Incorrect		
Age-categories	7-10years	66	46	22	F=0.39 (df=2)	0.676
	11-13years	30	24	6		
	14-16 years	2	3	1		
Education of Mother	Illiterate	17	29	15	F= 3.91 (df=6)	0.001**
	Primary	31	23	8		
	Middle	19	10	3		
	Secondary	24	10	1		
	Senior secondary	5	1	1		
	Graduate	1	0	1		
	Post-graduate	1	0	0		

ANOVA applied; *Statistically significant P-value less than 0.05; ** Statistically significant P-value less than 0.01

washing facilities with running water but occasionally lacking the supply of soap (6-8).

A vast majority of the participants (96.5%) showed their knowledge of the diseases caused by the unclean hands and presented awareness regarding the same topic. Similar results of knowledge was found in other studies indicating pivotal role of teachers and parents in making the children aware regarding the prevention of diseases by just the simple practice of washing hands (6, 9).

In our study, only 49% of the students displayed correct handwashing steps. The correct hand washing techniques were followed by 58.6% students in the study by Priyanka P. Gawai (6). This emphasizes on the need of the education of students regarding the proper handwashing steps. Regular and proper demonstrations should be performed so as to keep the children on the right track. A study conducted by Ashutosh Shrestha in 2014 showed statistically significant improvement in the hand washing steps when proper education was provided to the students (10). Here, the school teachers play the important role of primary educator in health care.

Limitations: Some of the students were shy to answer the questions in a proper way, so there could be a subjective variation of the data collected.

5. Conclusions

Hand washing is an important practice to safeguard ourselves against various diseases which are caused by unclean hands. School children being the most vulnerable population, need to be educated regarding the significance of this practice. Children are the budding society makers and are the best source to spread the message to their homes and communities. Schools should organize regular awareness sessions in order to keep our society safe and healthy. Therefore, it is imperative to make proper hand washing facilities available proper in all the schools.

Ethical Approval

The Ethics Review Board of Adesh Institute of Medical Sciences and Research, Bathinda, India, approved the present study with the following number AU/EC/FM/25/2020.

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Conflicts of interest: None to declare.

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